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**Rate of change and other metrics: a live study of the world wide web**
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**↑ ABSTRACT**

Caching in the World Wide Web is based on two critical assumptions: that a significant fraction of requests reaccess resources that have already been retrieved; and that those resources do not change between accesses.

We tested the validity of these assumptions, and their dependence on characteristics of Web resources, including access rate, age at time of reference, content type, resource size, and Internet top-level domain. We also measured the rate at which resources change, and the prevalence of duplicate copies in the Web.


We quantified the potential benefit of a shared proxy-caching server in a large environment by using traces that were collected at the Internet connection points for two large corporations, representing significant numbers of references. Only 22% of the resources referenced in the traces we analyzed were accessed more than once, but about half of the references were to those multiply-referenced resources. Of this half, 13% were to a resource that had been modified since the previous traced reference to it.

We found that the content type and rate of access have a strong influence on these metrics, the domain has a moderate influence, and size has little effect. In addition, we studied other aspects of the rate of change, including semantic differences such as the insertion or deletion of anchors, phone numbers, and email addresses.



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#### ↑ INDEX TERMS

#### Primary Classification:

**C. Computer Systems Organization**↳ **C.2 COMPUTER-COMMUNICATION NETWORKS**↳ **C.2.4 Distributed Systems****Additional Classification:****H. Information Systems**↳ **H.3 INFORMATION STORAGE AND RETRIEVAL**↳ **H.3.4 Systems and Software**↳ **Subjects:** Performance evaluation (efficiency and effectiveness)↳ **Nouns:** World Wide Web (WWW)**General Terms:**

Measurement, Performance

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